PCT

REQUEST

The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty.

For receiving Office use only

International Application No.

International Filing Date

Name of receiving Office and "PCT International Application"

Applicant's or agent's file reference *(if desired) (12 characters maximum)* ADB27_PCT

Box No. I TITLE OF INVENTION

Device for storing data and method for dividing space for data storing

Box No. II APPLICANT ☐ This person is also inventor

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

Advanced Digital Broadcast Polska Sp. z o.o.
ul.Trasa Północna 16
65-119 Zielona Góra
Poland

Telephone No. (0048 68) 451 51 51
Facsimile No. (0048 68) 451 51 54
Teleprinter No.
Applicant's registration No. with the Office

State *(that is, country)* of nationality: PL

State *(that is, country)* of residence: PL

This person is applicant for the purposes of: ☐ all designated States ☒ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

Advanced Digital Broadcast Ltd.
8/F, 145 Chung Shan North Road, Section 2
Taipei, 104 Taiwan (ROC)

This person is:
☒ applicant only
☐ applicant and inventor
☐ inventor only *(If this check-box is marked, do not fill in below.)*

Applicant's registration No. with the Office

State *(that is, country)* of nationality: TW

State *(that is, country)* of residence: TW

This person is applicant for the purposes of: ☐ all designated States ☒ all designated States except the United States of America ☐ the United States of America only ☐ the States indicated in the Supplemental Box

☒ Further applicants and/or (further) inventors are indicated on a continuation sheet.

Box No. IV AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as: ☒ agent ☐ common representative

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

HUDY Ludwik
Czernichów 4
32-070 Czernichów, Kraków
Poland

Telephone No. 0048 607 305 061
Facsimile No. 0048 12 27 02 115
Teleprinter No.
Agent's registration No. with the Office

☐ **Address for correspondence:** Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

Continuation of Box No. III FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

If none of the following sub-boxes is used, this sheet should not be included in the request.

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

SZAJDECKI Andrzej
ul. Węgierska 3/30
65-000 Zielona Góra
Poland

This person is:
- ☐ applicant only
- ☒ applicant and inventor
- ☐ inventor only *(If this check-box is marked, do not fill in below.)*

Applicant's registration No. with the Office:

State *(that is, country)* of nationality: PL

State *(that is, country)* of residence: PL

This person is applicant for the purposes of:
- ☐ all designated States
- ☐ all designated States except the United States of America
- ☒ the United States of America only
- ☐ the States indicated in the Supplemental Box

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

BINISZKIEWICZ Adam
ul. Jeździecka 9
65-544 Zielona Góra
Poland

This person is:
- ☐ applicant only
- ☒ applicant and inventor
- ☐ inventor only *(If this check-box is marked, do not fill in below.)*

Applicant's registration No. with the Office:

State *(that is, country)* of nationality: PL

State *(that is, country)* of residence: PL

This person is applicant for the purposes of:
- ☐ all designated States
- ☐ all designated States except the United States of America
- ☒ the United States of America only
- ☐ the States indicated in the Supplemental Box

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

This person is:
- ☐ applicant only
- ☐ applicant and inventor
- ☐ inventor only *(If this check-box is marked, do not fill in below.)*

Applicant's registration No. with the Office:

State *(that is, country)* of nationality:

State *(that is, country)* of residence:

This person is applicant for the purposes of:
- ☐ all designated States
- ☐ all designated States except the United States of America
- ☐ the United States of America only
- ☐ the States indicated in the Supplemental Box

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

This person is:
- ☐ applicant only
- ☐ applicant and inventor
- ☐ inventor only *(If this check-box is marked, do not fill in below.)*

Applicant's registration No. with the Office:

State *(that is, country)* of nationality:

State *(that is, country)* of residence:

This person is applicant for the purposes of:
- ☐ all designated States
- ☐ all designated States except the United States of America
- ☐ the United States of America only
- ☐ the States indicated in the Supplemental Box

☐ Further applicants and/or (further) inventors are indicated on another continuation sheet.

Box No. V DESIGNATION OF STATES *Mark the applicable check-boxes below; at least one must be marked*

The following designations are hereby made under Rule 4.9(a):

Regional Patent

☒ **AP** **ARIPO Patent:** GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, MZ Mozambique, SD Sudan, SL Sierra Leone, SZ Swaziland, TZ United Republic of Tanzania, UG Uganda, ZM Zambia, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT *(if other kind of protection or treatment desired, specify on dotted line)* .....

☒ **EA** **Eurasian Patent:** AM Armenia, AZ Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT

☒ **EP** **European Patent:** AT Austria, BE Belgium, BG Bulgaria, CH & LI Switzerland and Liechtenstein, CY Cyprus, CZ Czech Republic, DE Germany, DK Denmark, EE Estonia, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, SE Sweden, SK Slovakia, TR Turkey, and any other State which is a Contracting State of the European Patent Convention and of the PCT

☒ **OA** **OAPI Patent:** BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroon, GA Gabon, GN Guinea, GQ Equatorial Guinea, GW Guinea-Bissau, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT *(if other kind of protection or treatment desired, specify on dotted line)* .....

National Patent *(if other kind of protection or treatment desired, specify on dotted line)*:

☒ AE United Arab Emirates
☒ AG Antigua and Barbuda
☒ AL Albania
☒ AM Armenia
☒ AT Austria
☒ AU Australia
☒ AZ Azerbaijan
☒ BA Bosnia and Herzegovina
☒ BB Barbados
☒ BG Bulgaria
☒ BR Brazil
☒ BY Belarus
☒ BZ Belize
☒ CA Canada
☒ CH & LI Switzerland and Liechtenstein
☒ CN China
☒ CO Colombia
☒ CR Costa Rica
☒ CU Cuba
☒ CZ Czech Republic
☒ DE Germany
☒ DK Denmark
☒ DM Dominica
☒ DZ Algeria
☒ EC Ecuador
☒ EE Estonia
☒ ES Spain
☒ FI Finland
☒ GB United Kingdom
☒ GD Grenada
☒ GE Georgia
☒ GH Ghana
☒ GM Gambia
☒ HR Croatia
☒ HU Hungary
☒ ID Indonesia
☒ IL Israel
☒ IN India
☒ IS Iceland
☒ JP Japan
☒ KE Kenya
☒ KG Kyrgyzstan
☒ KP Democratic People's Republic of Korea
☒ KR Republic of Korea
☒ KZ Kazakhstan
☒ LC Saint Lucia
☒ LK Sri Lanka
☒ LR Liberia
☒ LS Lesotho
☒ LT Lithuania
☒ LU Luxembourg
☒ LV Latvia
☒ MA Morocco
☒ MD Republic of Moldova
☒ MG Madagascar
☒ MK The former Yugoslav Republic of Macedonia
☒ MN Mongolia
☒ MW Malawi
☒ MX Mexico
☒ MZ Mozambique
☒ NO Norway
☒ NZ New Zealand
☒ OM Oman
☒ PH Philippines
☐ PL Poland
☒ PT Portugal
☒ RO Romania
☒ RU Russian Federation
☒ SD Sudan
☒ SE Sweden
☒ SG Singapore
☒ SI Slovenia
☒ SK Slovakia
☒ SL Sierra Leone
☒ TJ Tajikistan
☒ TM Turkmenistan
☒ TN Tunisia
☒ TR Turkey
☒ TT Trinidad and Tobago
☒ TZ United Republic of Tanzania
☒ UA Ukraine
☒ UG Uganda
☒ US United States of America
☒ UZ Uzbekistan
☒ VN Viet Nam
☒ YU Yugoslavia
☒ ZA South Africa
☒ ZM Zambia
☒ ZW Zimbabwe

Check-boxes below reserved for designating States which have become party to the PCT after issuance of this sheet:

☐ ..... ☐ ..... ☐ .....
☐ ..... ☐ ..... ☐ .....

Precautionary Designation Statement: In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. *(Confirmation (including fees) must reach the receiving Office within the 15-month time limit.)*

See Notes to the request form

Box No. VI PRIORITY CLAIM

The priority of the following earlier application(s) is hereby claimed:

Filing date of earlier application *(day/month/year)*	Number of earlier application	Where earlier application is:		
		national application: country or Member of WTO	regional application:* regional Office	international application: receiving Office
item (1) (18.01.2002) 18 January 2002	P- 351779	PL		
item (2)				
item (3)				
item (4)				
item (5)				

☐ Further priority claims are indicated in the Supplemental Box.

The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) *(only if the earlier application was filed with the Office which for the purposes of this international application is the receiving Office)* identified above as:

☐ all items ☒ item (1) ☐ item (2) ☐ item (3) ☐ item (4) ☐ item (5) ☐ other, see Supplemental Box

* *Where the earlier application is an ARIPO application, indicate at least one country party to the Paris Convention for the Protection of Industrial Property or one Member of the World Trade Organization for which that earlier application was filed (Rule 4.10(b)(ii)):* . . . .

Box No. VII INTERNATIONAL SEARCHING AUTHORITY

Choice of International Searching Authority (ISA) *(if two or more International Searching Authorities are competent to carry out the international search, indicate the Authority chosen; the two-letter code may be used):*

ISA / . . . . . .

Request to use results of earlier search; reference to that search *(if an earlier search has been carried out by or requested from the International Searching Authority):*

Date *(day/month/year)* Number Country *(or regional Office)*

Box No. VIII DECLARATIONS

The following **declarations** are contained in Boxes Nos. VIII (i) to (v) *(mark the applicable check-boxes below and indicate in the right column the number of each type of declaration)*:			Number of declarations
☐ Box No. VIII (i)	Declaration as to the identity of the inventor	:	
☒ Box No. VIII (ii)	Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent	:	1
☒ Box No. VIII (iii)	Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application	:	1
☒ Box No. VIII (iv)	Declaration of inventorship (only for the purposes of the designation of the United States of America)	:	1
☐ Box No. VIII (v)	Declaration as to non-prejudicial disclosures or exceptions to lack of novelty	:	

Box No. VIII (iv) DECLARATION: INVENTORSHIP (only for the purposes of the designation of the United States of America)

The declaration must conform to the following standardized wording provided for in Section 214; see Notes to Boxes Nos. VIII, VIII (i) to (v) (in general) and the specific Notes to Box No. VIII (iv). If this Box is not used, this sheet should not be included in the request.

Declaration of inventorship (Rules 4.17(iv) and 51*bis*.1(a)(iv)) for the purposes of the designation of the United States of America:

I hereby declare that I believe I am the original, first and sole (if only one inventor is listed below) or joint (if more than one inventor is listed below) inventor of the subject matter which is claimed and for which a patent is sought.

This declaration is directed to the international application of which it forms a part (if filing declaration with application).

This declaration is directed to international application No. PCT/..... (if furnishing declaration pursuant to Rule 26*ter*).

I hereby declare that my residence, mailing address, and citizenship are as stated next to my name.

I hereby state that I have reviewed and understand the contents of the above-identified international application, including the claims of said application. I have identified in the request of said application, in compliance with PCT Rule 4.10, any claim to foreign priority, and I have identified below, under the heading "Prior Applications," by application number, country or Member of the World Trade Organization, day, month and year of filing, any application for a patent or inventor's certificate filed in a country other than the United States of America, including any PCT international application designating at least one country other than the United States of America, having a filing date before that of the application on which foreign priority is claimed.

Prior Applications: P-351779, Poland, 18 January 2002, /18.01.2002/

I hereby acknowledge the duty to disclose information that is known by me to be material to patentability as defined by 37 C.F.R. § 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the PCT international filing date of the continuation-in-part application.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

100

Name: SZAJDECKI, Andrzej

Residence: Zielona Góra, Poland PL X
(city and either US state, if applicable, or country)

Mailing Address: SZAJDECKI Andrzej
ul. Węgierska 3/30, 65-000 Zielona Góra, Poland

Citizenship: Polish

Inventor's Signature: Andrzej Szajdecki (if not contained in the request, or if declaration is corrected or added under Rule 26*ter* after the filing of the international application. The signature must be that of the inventor, not that of the agent)

Date: 30th October 2002 (of signature which is not contained in the request, or of the declaration that is corrected or added under Rule 26*ter* after the filing of the international application)

200

Name: BINISZKIEWICZ, Adam

Residence: Zielona Góra, Poland PL X
(city and either US state, if applicable, or country)

Mailing Address: BINISZKIEWICZ, Adam
ul. Jeździecka 9, 65-544 Zielona Góra, Poland

Citizenship: Polish

Inventor's Signature: Biniszkiewicz Adam (if not contained in the request, or if declaration is corrected or added under Rule 26*ter* after the filing of the international application. The signature must be that of the inventor, not that of the agent)

Date: 30th October 2002 (of signature which is not contained in the request, or of the declaration that is corrected or added under Rule 26*ter* after the filing of the international application)

☐ This declaration is continued on the following sheet, "Continuation of Box No. VIII (iv)".

Box No. VIII (ii) DECLARATION: ENTITLEMENT TO APPLY FOR AND BE GRANTED A PATENT

The declaration must conform to the standardized wording provided for in Section 212; see Notes to Boxes Nos. VIII, VIII (i) to (v) (in general) and the specific Notes to Box No. VIII (ii). If this Box is not used, this sheet should not be included in the request.

Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent (Rules 4.17(ii) and 51*bis*.1(a)(ii)), in a case where the declaration under Rule 4.17(iv) is not appropriate:

In relation to this international application Advanced Digital Broadcast Polska Sp. z o.o., ul.Trasa Północna 16, 65-119 Zielona Góra, Poland, is entitled to apply for and be granted a patent by virtue of the following:

an assignment from Advanced Digital Broadcast Ltd., 8/F, 145 Chung Shan North Road, Section 2, Taipei, 104 Taiwan, Taiwan to Advanced Digital Broadcast Polska Sp. z o.o., ul.Trasa Północna 16, 65-119 Zielona Góra, Poland, dated 12 November 2002 /12.11.2002/
and
Advanced Digital Broadcast Ltd., 8/F, 145 Chung Shan North Road, Section 2, Taipei, 104 Taiwan, Taiwan is entitled as employer of the following inventors:
SZAJDECKI Andrzej, ul. Węgierska 3/30, 65-000 Zielona Góra, Poland;
BINISZKIEWICZ, Adam, ul. Jeździecka 9, 65-544 Zielona Góra, Poland.

This declaration is made for the purposes of all designations.

☐ This declaration is continued on the following sheet, "Continuation of Box No. VIII (ii)".

Box No. VIII (iii) DECLARATION: ENTITLEMENT TO CLAIM PRIORITY

The declaration must conform to the standardized wording provided for in Section 213; see Notes to Boxes Nos. VIII, VIII (i) to (v) (in general) and the specific Notes to Box No. VIII (iii). If this Box is not used, this sheet should not be included in the request.

Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application specified below, where the applicant is not the applicant who filed the earlier application or where the applicant's name has changed since the filing of the earlier application (Rules 4.17(iii) and 51*bis*.1(a)(iii)):

In relation to this international application Advanced Digital Broadcast Polska Sp. z o.o., ul.Trasa Północna 16, 65-119 Zielona Góra, Poland, is entitled to claim priority of earlier application No. P-351779 filed 18 January 2002, /18.01.2002/ by virtue of the following:

an assignment from Advanced Digital Broadcast Ltd., 8/F, 145 Chung Shan North Road, Section 2, Taipei, 104 Taiwan, Taiwan to Advanced Digital Broadcast Polska Sp. z o.o., ul.Trasa Północna 16, 65-119 Zielona Góra, Poland, dated 12 November 2002 /12.11.2002/
and
Advanced Digital Broadcast Ltd., 8/F, 145 Chung Shan North Road, Section 2, Taipei, 104 Taiwan, Taiwan is entitled as employer of the following inventors:
SZAJDECKI Andrzej, ul. Węgierska 3/30, 65-000 Zielona Góra, Poland;
BINISZKIEWICZ, Adam, ul. Jeździecka 9, 65-544 Zielona Góra, Poland.

This declaration is made for the purposes of all designations.

☐ This declaration is continued on the following sheet, "Continuation of Box No. VIII (iii)".

Sheet No. 8

Box No. IX CHECK LIST; LANGUAGE OF FILING

This international application contains:

(a) the following number of sheets in paper form:

request (including declaration sheets)	:	8
description (excluding sequence listing part)	:	6
claims	:	3
abstract	:	1
drawings	:	2
Sub-total number of sheets	:	20
sequence listing part of description *(actual number of sheets if filed in paper form, whether or not also filed in computer readable form; see (b) below)*	:	
Total number of sheets	:	20

(b) sequence listing part of description filed in computer readable form

(i) ☐ only (under Section 801(a)(i))

(ii) ☐ in addition to being filed in paper form (under Section 801(a)(ii))

Type and number of carriers (diskette, CD-ROM, CD-R or other) on which the sequence listing part is contained *(additional copies to be indicated under item 9(ii), in right column)*: .....

This international application is **accompanied** by the following item(s) *(mark the applicable check-boxes below and indicate in right column the number of each item)*:

		Number of items
1. ☐ fee calculation sheet	:	
2. ☒ original separate power of attorney	:	3
3. ☐ original general power of attorney	:	
4. ☐ copy of general power of attorney; reference number, if any:	:	
5. ☐ statement explaining lack of signature	:	
6. ☐ priority document(s) identified in Box No. VI as item(s):	:	
7. ☐ translation of international application into *(language)*:	:	
8. ☐ separate indications concerning deposited microorganism or other biological material	:	
9. ☐ sequence listing in computer readable form (indicate also type and number of carriers (diskette, CD-ROM, CD-R or other))		
(i) ☐ copy submitted for the purposes of international search under Rule 13*ter* only (and not as part of the international application)	:	
(ii) ☐ *(only where check-box (b)(i) or (b)(ii) is marked in left column)* additional copies including, where applicable, the copy for the purposes of international search under Rule 13*ter*	:	
(iii) ☐ together with relevant statement as to the identity of the copy or copies with the sequence listing part mentioned in left column	:	
10. ☐ other *(specify)*:	:	

Figure of the drawings which should accompany the abstract: Fig. 2

Language of filing of the international application: English

Box No. X SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the request).

HUDY Ludwik, agent

Hudy

For receiving Office use only

1. Date of actual receipt of the purported international application:	2. Drawings: ☐ received:
3. Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application:	
4. Date of timely receipt of the required corrections under PCT Article 11(2):	☐ not received:
5. International Searching Authority (if two or more are competent): ISA /	6. ☐ Transmittal of search copy delayed until search fee is paid

For International Bureau use only

Date of receipt of the record copy by the International Bureau:

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
24 July 2003 (24.07.2003)

PCT

(10) International Publication Number
WO 03/060687 A2

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(21) International Application Number: PCT/PL03/00004

(22) International Filing Date: 16 January 2003 (16.01.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
P-351779 18 January 2002 (18.01.2002) PL

(71) Applicants *(for all designated States except US)*: **ADVANCED DIGITAL BROADCAST POLSKA SP. Z O.O.** [PL/PL]; ul. Trasa Północna 16, PL-65-119 Zielona Góra (PL). **ADVANCED DIGITAL BROADCAST LTD.** [—/—]; 8/F, 145 Chung Shan North Road, Section 2, Taipei 104 (TW).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: **SZAJDECKI, Andrzej** [PL/PL]; ul. Węgierska 3/30, PL-65-000 Zielona Góra (PL). **BINISZKIEWICZ, Adam** [PL/PL]; ul. Jezdiecka 9, PL-65-544 Zielona Góra (PL).

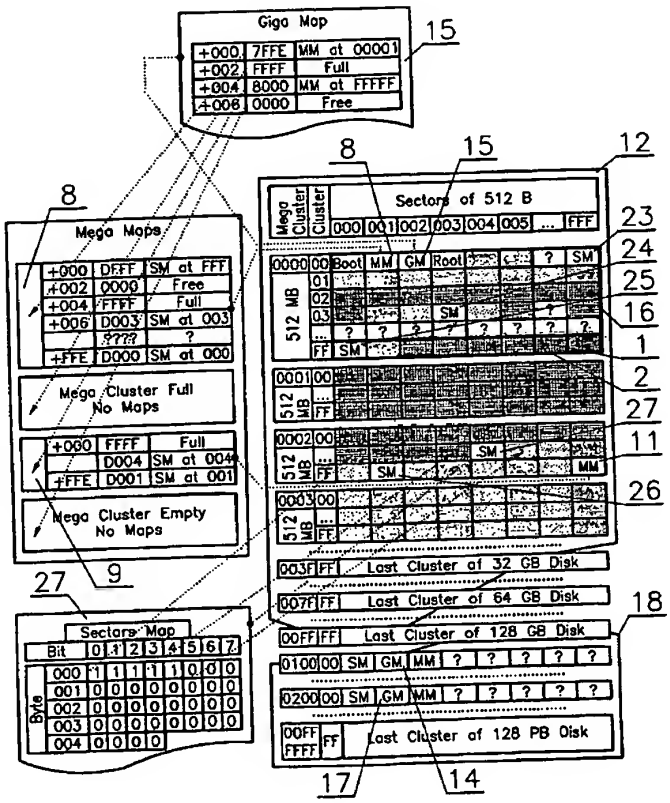
(74) Agent: **HUDY, Ludwik**; Czernichów 4, PL-32-070 Czernichów, Kraków (PL).

(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI,

[Continued on next page]

(54) Title: DEVICE FOR STORING DATA AND METHOD FOR DIVIDING SPACE FOR DATA STORING



(57) Abstract: A device for data storing with logically separated areas has blocks (2, 3, 4) of a predetermined size created from a definite number of logically separated smallest areas (1). Larger blocks (3, 4) with a higher integration level are definite multiples of smaller blocks (2, 3) with a lower integration level, and the smaller blocks (2, 3) compose the larger blocks (3, 4) larger by one integration level, and integration of the logically separated smallest areas (1) is performed in recurrent manner till the integration covers the whole area of the device for data storing.

WO 03/060687 A2

SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *without international search report and to be republished upon receipt of that report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

DEVICE FOR STORING DATA AND METHOD FOR DIVIDING SPACE FOR DATA STORING

TECHNICAL FIELD

The invention relates to a device for storing information with logically separated areas and a method for dividing space for data storing.

BACKGROUND ART

The most common devices for storing data are hard disks and floppy disks utilizing different methods of data recording which have different locations within the storage area and different means of access. Space for storing data on the same hard disks can be organized in different ways, and even the organization within one hard disk can be arranged in various ways. The recorded information is usually not a continuous sequence of bytes but is organized in so-called sectors, which are the smallest portions of information that can be read from the disk. Sectors can be assembled into clusters, which are assigned specific numbers.

In the well-known structure of space for data storage described above, both sectors and clusters create a logical structure on the hard disk which can be divided into logical areas, administrated separately, similarly as separate logical disks drives. Most often the partitioning of disks is executed prior to recording any information on them.

From the US patent No. 6,032,161 a partition system is known, which is added to an existing partition by creating a new file in the mass memory of the existing partition, and assigning this file the attributes of a partition.

Disks with file systems described above, because of their universality, can be read by any personal computer with a proper operating system and, additionally, are intended to operate medium size files. However, their demand for memory is large and they are not efficient at handling a lot of audio-video data streams of very large size.

DISCLOSURE OF INVENTION

According to the present invention, a device for data storing with logically separated areas, a definite number of logically separated smallest areas create blocks of a predetermined size, among which larger blocks with a higher integration level are definite multiples of smaller blocks with a lower integration level, and the smaller blocks compose the larger blocks larger by one integration level, and the integration of the logically separated smallest areas is performed in recurrent manner till the integration covers the whole area of the device for data storing.

The size of a block with greater, by one, integration level can have the memory size equal to a multiple of the size of blocks with smaller, by one, integration level, and the amount of information that can be stored in the logically separated smallest area.

The number of the logically separated smallest areas in the block of the minimal integration level can equal the number of bits that can be stored in the logically separated smallest area.

The blocks of predetermined size can have at least three states and information concerning their state is stored within their area or within the area of blocks with greater, by one, integration level.

The blocks of predetermined size may be free, busy or fragmented.

The logically separated smallest areas have at least two states.

The logically separated smallest areas are either free or busy.

The logically separated smallest areas are the smallest areas of memory, which cannot be subdivided, or their multiplication, and their size depends upon the device for storing data.

The logically separated smallest areas have the size of 512 bits.

The blocks of predetermined size do not contain data concerning their state if they are completely busy or free and in that case the related information is included in a greater block, with the integration level greater by one.

The object of the invention is also a method for dividing space for data storing with logically separated areas, in which blocks of predetermined size are created from a defined number of logically separated smallest areas, and

smaller blocks are combined recurrently into greater blocks till the partition covers the entire area of a device for storing data, where the greater blocks with a higher level of combination are a definite multiplication of the smaller blocks with a lower level of combination, and the smaller blocks are incorporated into the blocks greater by one level than the smaller blocks.

BRIEF DESCRIPTION OF DRAWINGS

The object of this invention is shown in implementation examples on the enclosed drawings, where fig. 1 shows a hard disk with logical partitioning executed and fig. 2 shows a hard disk with maps.

BEST MODE FOR CARRYING OUT THE INVENTION

The invention will be described in detail with reference to a hard disk but the presented solution can be applied to other devices for storing data.

The hard disk shown in fig. 1 contains logically separated areas. Its smallest allocation unit or, in other words, its logically separated smallest area, is a sector 1. The greatest logically separated areas of that disk are blocks of memory called teraclusters, which are divided into smaller areas, 256 GB in size, called gigaclusters 4. The gigaclusters 4 are divided into megaclusters 3, which subsequently are divided into clusters 2. The process of hard disk division is performed recurrently till the blocks of the smallest logically separated areas, called the sectors 1, are reached.

The arrows 5 mean that a teracluster can form a bigger area unit whose upper limit is not determined.

The teracluster of the described hard disk has 256 gigaclusters 4 numbered from 0x00 to 0xFF in the hexadecimal system. Each gigacluster 4 has 256 megaclusters 3, each with 256 clusters 2 having 4096 sectors 1 of the 512 bytes capacity. In consequence, a definite number of blocks with a smaller size and with a lower level of integration, for example clusters or megaclusters,

compose blocks of a subsequently higher degree of intergration which are megaclusters and gigaclusters, respectively.

The megaclusters 3 and the clusters 2 are numbered in the same way as the gigaclusters 4.

Fig. 2 presents a detailed division of the hard disk with the gigacluster 12 as the greatest area unit. The fragment of this hard disk, containing 4096 sectors 1, creates the cluster 2 of the size of 2 MB. Information concerning each sector 1 in the cluster 2 is included into the sectors map 25 placed within the area of the particular cluster 2 and occupying the area of one sector. Every bit of the sectors map 23, 24, 25, 26, 27 shows whether a given sector is busy or free.

In case of a completely busy or free cluster, there is no need to store information within the cluster about its free or busy sectors. Therefore, suitable information is placed in the map of clusters, called the megamap 8, 9, 11. The megamap 8, 9, 11 describes fragmented allocations of the gigacluster 12 and its position is determined in the map of megaclusters, called the gigamap 15. For example, the megamap 8 states that the zero cluster has its sectors map 23 placed in sector 4095, which corresponds to 0xFFF in the hexadecimal system. The subsequent cluster, according to the presented description the first cluster of the megacluster 16, is free. The next one is occupied by one big file and there is no map of sectors. The following cluster has its sectors map in the third sector 24 and the sectors map 25 of the last cluster of the megacluster 16 is located in the zero sector of the cluster.

The gigacluster represents the maximum hard disk size as specified in the ATA/ATAPI-5 standard. For disks smaller than 128 GB, gigaclusters are not fully used and areas greater than the disk size are marked as busy. Disks greater than 128 GB contain more gigaclusters 18. The allocation map of the gigacluster, called the gigamap, 14, 15, 17, is situated in a single sector within the area of the first or last 32767 sectors of the given gigacluster. The gigacluster 12, 18 consists of 256 megaclusters positioned on the gigamap 14, 15, 17. Two bytes of the gigamap describe the state of a particular megacluster and 0x0000 means that the megacluster is free and its map does not exist,

0x7FFF..0x0001 means that a given megacluster is fragmented and its megamap is stored in sector 0x00000..0x07FFE of this gigacluster, and 0x7FFF...0x0001 means that a given megacluster is fragmented and its megamap is stored in sector 0xF8001..0xFFFFF of this gigacluster.

A fully busy megacluster may not have its own map and information about the megacluster occupation state is given on the map higher by one degree in the hierarchy, in this case on the gigamap. A totally busy megacluster is marked as 0xFFFF.

A certain regularity can be noted in the quoted description, namely, the final address of the described sector or block originates from the address of the analyzed map and its contents.

The gigamap 15 of a fragment of the disk shown in fig. 2, is placed in the second sector of the disk and that place is selected arbitrarily for storage of the gigamap 15, however, there is a possibility of choosing different locations. For disks larger than 128 GB, containing more gigaclusters 18, the localization of a gigamap would be determined in a teramap, stored in an arbitrarily selected place on the disk, known in advance, which gives prospects for possible extension of the presented idea. Data stored in the gigamap 15 means that the megamap 8 for a zero megacluster is located in the first sector, and the next megacluster is fully busy. The megacluster 9 is partly fragmented and its megamap is placed in the last sector 11 of that megacluster which is the sector 0xFFFFF of that cluster. The next megacluster is totally free and contains no map.

The map of sectors described above, and a megamap, a gigamap and a teramap, each placed one level higher in the hierarchy, provide information about the state of the logically separated areas described by them, called the blocks.

There are also the boot and root sectors marked in fig. 2. Their location is set, similarly as for the gigamap in the case of disks not larger than 128 GB, during formatting, possibly in one of the first sectors of that disk. These sectors serve for storing basic information necessary for correct system performance and storage of the structure of directories and files on the disk. For example

they define the location of the main directory or the location of gigamap storage.

CLAIMS

1. A device for data storing with logically separated areas comprising blocks (2, 3, 4) of a predetermined size created from a definite number of logically separated smallest areas (1), wherein larger blocks (3, 4) with a higher integration level are definite multiples of smaller blocks (2, 3) with a lower integration level, and the smaller blocks (2, 3) compose the larger blocks (3, 4) larger by one integration level, and integration of the logically separated smallest areas (1) is performed in recurrent manner till the integration covers the whole area of the device for data storing.

2. The device for data storing, according to claim 1, in which a block (3, 4) with greater, by one, integration level has a memory size equal to a multiple of a size of blocks (2, 3) with smaller, by one, integration level, and the amount of information that is stored in the logically separated smallest area (1).

3. The device for data storing, according to claim 1, in which a number of the logically separated smallest areas (1) in a block (2) of the minimal integration level is equal a number of bits that can be stored in the logically separated smallest area (1).

4. The device for data storing, according to claim 1, in which blocks (2, 3, 4) of predetermined size have at least three states and information concerning their state is stored within their area or within the area of blocks with greater, by one, integration level.

5. The device for data storing, according to claim 1, in which blocks (2, 3, 4) of predetermined size may be free, busy or fragmented.

6. The device for data storing, according to claim 1, in which the logically separated smallest areas (1) have at least two states.

7. The device for data storing, according to claim 1, in which the logically separated smallest areas (1) are either free or busy.

8. The device for data storing, according to claim 1, in which the logically separated smallest areas (1) are the smallest areas of memory, which cannot be subdivided, and their multiplication, and their size depends upon the device for storing data.

9. The device for data storing, according to claim 1, in which the logically separated smallest areas (1) have the size of 512 bits.

10. The device for data storing, according to claim 1, in which the blocks (2, 3, 4) of predetermined size do not contain data concerning their state if they are completely busy or free and in that case related information is included in a greater block, with an integration level greater by one.

11. A method for dividing space for data storing with logically separated areas comprising the following step:

creating blocks of predetermined size from a defined number of logically separated smallest areas wherein smaller blocks are combined recurrently into greater blocks till the partition covers the entire area of a device for storing data, and wherein greater blocks with a higher level of combination are a definite multiplication of smaller blocks with a lower level of combination, and the smaller blocks are incorporated into the greater blocks greater by one level than the smaller blocks.

12. The method for dividing space, according to claim 11, characterized in that a block (3, 4) with greater, by one, integration level has a memory size equal to a multiple of a size of blocks (2, 3) with smaller, by one, integration level, and the amount of information that is stored in the logically separated smallest area (1).

13. The method for dividing space, according to claim 11, characterized in that a number of the logically separated smallest areas (1) in a block (2) of the minimal integration level is equal a number of bits that can be stored in the logically separated smallest area (1).

14. The method for dividing space, according to claim 11, characterized in that blocks (2, 3, 4) of predetermined size have at least three states and information concerning theirs state is stored within their area or within the area of blocks with greater, by one, integration level.

15. The method for dividing space, according to claim 11, characterized in that blocks (2, 3, 4) of predetermined size may be free, busy or fragmented.

16. The method for dividing space, according to claim 11, characterized in that the logically separated smallest areas (1) have at least two states.

17. The method for dividing space, according to claim 11, characterized in that the logically separated smallest areas (1) are either free or busy.

18. The method for dividing space, according to claim 11, characterized in that the logically separated smallest areas (1) are the smallest areas of memory, which cannot be subdivided, and their multiplication, and their size depends upon the device for storing data.

19. The method for dividing space, according to claim 11, characterized in that the logically separated smallest areas (1) have the size of 512 bits.

20. The method for dividing space, according to claim 11, characterized in that the blocks (2, 3, 4) of predetermined size do not contain data concerning their state if they are completely busy or free and in that case related information is included in a greater block, with an integration level greater by one.

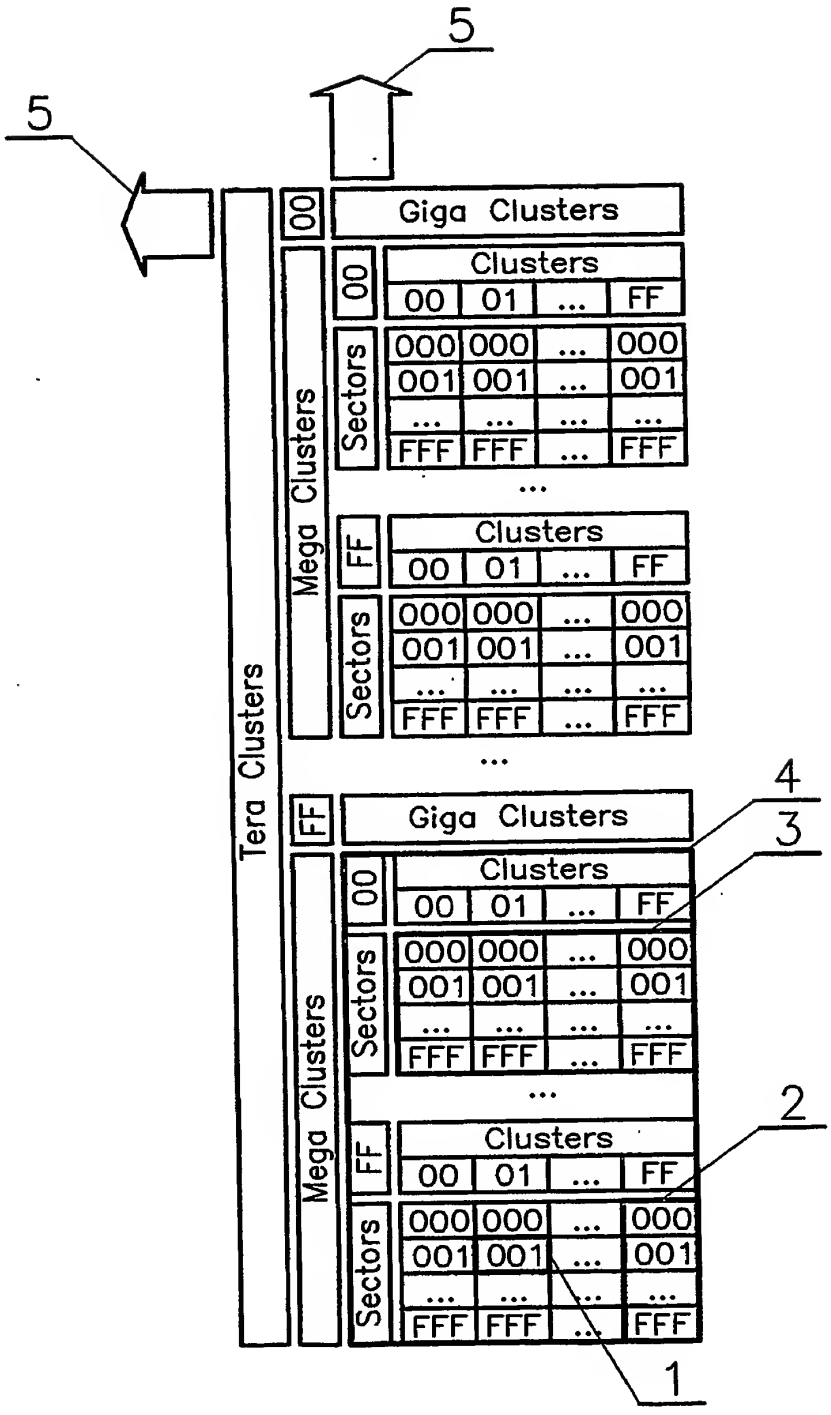

5
5
Tera Clusters
Mega Clusters
Giga Clusters
00
FF
Clusters
00 01 ... FF
Sectors
000 000 ... 000
001 001 ... 001
... ...
FFF FFF ... FFF
4
3
2
1

Fig.1

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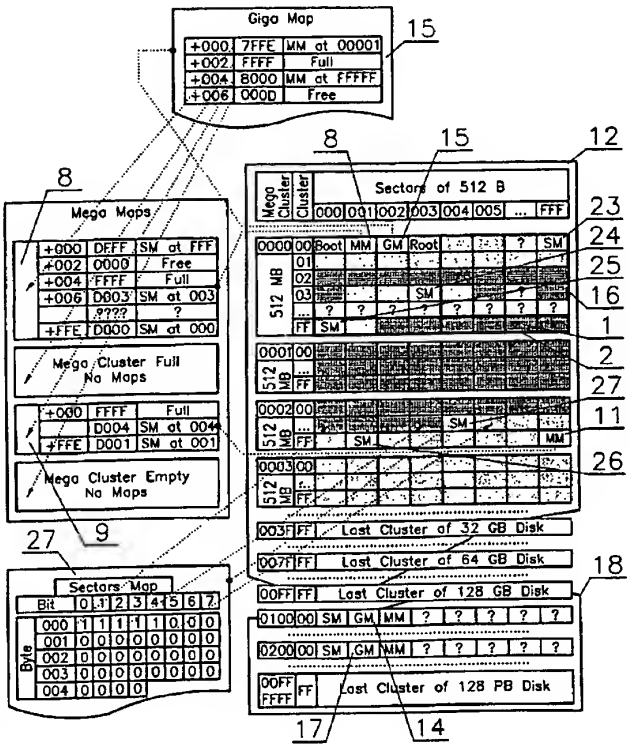
[Continued on next page]

(54) Title: DEVICE FOR STORING DATA AND METHOD FOR DIVIDING SPACE FOR DATA STORING



(57) Abstract: A device for data storing with logically separated areas has blocks (2, 3, 4) of a predetermined size created from a definite number of logically separated smallest areas (1). Larger blocks (3, 4) with a higher integration level are definite multiples of smaller blocks (2, 3) with a lower integration level, and the smaller blocks (2, 3) compose the larger blocks (3, 4) larger by one integration level, and integration of the logically separated smallest areas (1) is performed in recurrent manner till the integration covers the whole area of the device for data storing.

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ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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DEVICE FOR STORING DATA AND METHOD FOR DIVIDING SPACE FOR DATA STORING

TECHNICAL FIELD

The invention relates to a device for storing information with logically separated areas and a method for dividing space for data storing.

BACKGROUND ART

The most common devices for storing data are hard disks and floppy disks utilizing different methods of data recording which have different locations within the storage area and different means of access. Space for storing data on the same hard disks can be organized in different ways, and even the organization within one hard disk can be arranged in various ways. The recorded information is usually not a continuous sequence of bytes but is organized in so-called sectors, which are the smallest portions of information that can be read from the disk. Sectors can be assembled into clusters, which are assigned specific numbers.

In the well-known structure of space for data storage described above, both sectors and clusters create a logical structure on the hard disk which can be divided into logical areas, administrated separately, similarly as separate logical disks drives. Most often the partitioning of disks is executed prior to recording any information on them.

From the US patent No. 6,032,161 a partition system is known, which is added to an existing partition by creating a new file in the mass memory of the existing partition, and assigning this file the attributes of a partition.

Disks with file systems described above, because of their universality, can be read by any personal computer with a proper operating system and, additionally, are intended to operate medium size files. However, their demand for memory is large and they are not efficient at handling a lot of audio-video data streams of very large size.

DISCLOSURE OF INVENTION

According to the present invention, a device for data storing with logically separated areas, a definite number of logically separated smallest areas create blocks of a predetermined size, among which larger blocks with a higher integration level are definite multiples of smaller blocks with a lower integration level, and the smaller blocks compose the larger blocks larger by one integration level, and the integration of the logically separated smallest areas is performed in recurrent manner till the integration covers the whole area of the device for data storing.

The size of a block with greater, by one, integration level can have the memory size equal to a multiple of the size of blocks with smaller, by one, integration level, and the amount of information that can be stored in the logically separated smallest area.

The number of the logically separated smallest areas in the block of the minimal integration level can equal the number of bits that can be stored in the logically separated smallest area.

The blocks of predetermined size can have at least three states and information concerning their state is stored within their area or within the area of blocks with greater, by one, integration level.

The blocks of predetermined size may be free, busy or fragmented.

The logically separated smallest areas have at least two states.

The logically separated smallest areas are either free or busy.

The logically separated smallest areas are the smallest areas of memory, which cannot be subdivided, or their multiplication, and their size depends upon the device for storing data.

The logically separated smallest areas have the size of 512 bits.

The blocks of predetermined size do not contain data concerning their state if they are completely busy or free and in that case the related information is included in a greater block, with the integration level greater by one.

The object of the invention is also a method for dividing space for data storing with logically separated areas, in which blocks of predetermined size are created from a defined number of logically separated smallest areas, and

smaller blocks are combined recurrently into greater blocks till the partition covers the entire area of a device for storing data, where the greater blocks with a higher level of combination are a definite multiplication of the smaller blocks with a lower level of combination, and the smaller blocks are incorporated into the blocks greater by one level than the smaller blocks.

BRIEF DESCRIPTION OF DRAWINGS

The object of this invention is shown in implementation examples on the enclosed drawings, where fig. 1 shows a hard disk with logical partitioning executed and fig. 2 shows a hard disk with maps.

BEST MODE FOR CARRYING OUT THE INVENTION

The invention will be described in detail with reference to a hard disk but the presented solution can be applied to other devices for storing data.

The hard disk shown in fig. 1 contains logically separated areas. Its smallest allocation unit or, in other words, its logically separated smallest area, is a sector 1. The greatest logically separated areas of that disk are blocks of memory called teraclusters, which are divided into smaller areas, 256 GB in size, called gigaclusters 4. The gigaclusters 4 are divided into megaclusters 3, which subsequently are divided into clusters 2. The process of hard disk division is performed recurrently till the blocks of the smallest logically separated areas, called the sectors 1, are reached.

The arrows 5 mean that a teracluster can form a bigger area unit whose upper limit is not determined.

The teracluster of the described hard disk has 256 gigaclusters 4 numbered from 0x00 to 0xFF in the hexadecimal system. Each gigacluster 4 has 256 megaclusters 3, each with 256 clusters 2 having 4096 sectors 1 of the 512 bytes capacity. In consequence, a definite number of blocks with a smaller size and with a lower level of integration, for example clusters or megaclusters,

compose blocks of a subsequently higher degree of intergration which are megaclusters and gigaclusters, respectively.

The megaclusters 3 and the clusters 2 are numbered in the same way as the gigaclusters 4.

Fig. 2 presents a detailed division of the hard disk with the gigacluster 12 as the greatest area unit. The fragment of this hard disk, containing 4096 sectors 1, creates the cluster 2 of the size of 2 MB. Information concerning each sector 1 in the cluster 2 is included into the sectors map 25 placed within the area of the particular cluster 2 and occupying the area of one sector. Every bit of the sectors map 23, 24, 25, 26, 27 shows whether a given sector is busy or free.

In case of a completely busy or free cluster, there is no need to store information within the cluster about its free or busy sectors. Therefore, suitable information is placed in the map of clusters, called the megamap 8, 9, 11. The megamap 8, 9, 11 describes fragmented allocations of the gigacluster 12 and its position is determined in the map of megaclusters, called the gigamap 15. For example, the megamap 8 states that the zero cluster has its sectors map 23 placed in sector 4095, which corresponds to 0xFFF in the hexadecimal system. The subsequent cluster, according to the presented description the first cluster of the megacluster 16, is free. The next one is occupied by one big file and there is no map of sectors. The following cluster has its sectors map in the third sector 24 and the sectors map 25 of the last cluster of the megacluster 16 is located in the zero sector of the cluster.

The gigacluster represents the maximum hard disk size as specified in the ATA/ATAPI-5 standard. For disks smaller than 128 GB, gigaclusters are not fully used and areas greater than the disk size are marked as busy. Disks greater than 128 GB contain more gigaclusters 18. The allocation map of the gigacluster, called the gigamap, 14, 15, 17, is situated in a single sector within the area of the first or last 32767 sectors of the given gigacluster. The gigacluster 12, 18 consists of 256 megaclusters positioned on the gigamap 14, 15, 17. Two bytes of the gigamap describe the state of a particular megacluster and 0x0000 means that the megacluster is free and its map does not exist,

0x7FFF..0x0001 means that a given megacluster is fragmented and its megamap is stored in sector 0x00000..0x07FFE of this gigacluster, and 0x7FFF...0x0001 means that a given megacluster is fragmented and its megamap is stored in sector 0xF8001..0xFFFFF of this gigacluster.

A fully busy megacluster may not have its own map and information about the megacluster occupation state is given on the map higher by one degree in the hierarchy, in this case on the gigamap. A totally busy megacluster is marked as 0xFFFF.

A certain regularity can be noted in the quoted description, namely, the final address of the described sector or block originates from the address of the analyzed map and its contents.

The gigamap 15 of a fragment of the disk shown in fig. 2, is placed in the second sector of the disk and that place is selected arbitrarily for storage of the gigamap 15, however, there is a possibility of choosing different locations. For disks larger than 128 GB, containing more gigaclusters 18, the localization of a gigamap would be determined in a teramap, stored in an arbitrarily selected place on the disk, known in advance, which gives prospects for possible extension of the presented idea. Data stored in the gigamap 15 means that the megamap 8 for a zero megacluster is located in the first sector, and the next megacluster is fully busy. The megacluster 9 is partly fragmented and its megamap is placed in the last sector 11 of that megacluster which is the sector 0xFFFFF of that cluster. The next megacluster is totally free and contains no map.

The map of sectors described above, and a megamap, a gigamap and a teramap, each placed one level higher in the hierarchy, provide information about the state of the logically separated areas described by them, called the blocks.

There are also the boot and root sectors marked in fig. 2. Their location is set, similarly as for the gigamap in the case of disks not larger than 128 GB, during formatting, possibly in one of the first sectors of that disk. These sectors serve for storing basic information necessary for correct system performance and storage of the structure of directories and files on the disk. For example

they define the location of the main directory or the location of gigamap storage.

CLAIMS

1. A device for data storing with logically separated areas comprising blocks (2, 3, 4) of a predetermined size created from a definite number of logically separated smallest areas (1), wherein larger blocks (3, 4) with a higher integration level are definite multiples of smaller blocks (2, 3) with a lower integration level, and the smaller blocks (2, 3) compose the larger blocks (3, 4) larger by one integration level, and integration of the logically separated smallest areas (1) is performed in recurrent manner till the integration covers the whole area of the device for data storing.

2. The device for data storing, according to claim 1, in which a block (3, 4) with greater, by one, integration level has a memory size equal to a multiple of a size of blocks (2, 3) with smaller, by one, integration level, and the amount of information that is stored in the logically separated smallest area (1).

3. The device for data storing, according to claim 1, in which a number of the logically separated smallest areas (1) in a block (2) of the minimal integration level is equal a number of bits that can be stored in the logically separated smallest area (1).

4. The device for data storing, according to claim 1, in which blocks (2, 3, 4) of predetermined size have at least three states and information concerning their state is stored within their area or within the area of blocks with greater, by one, integration level.

5. The device for data storing, according to claim 1, in which blocks (2, 3, 4) of predetermined size may be free, busy or fragmented.

6. The device for data storing, according to claim 1, in which the logically separated smallest areas (1) have at least two states.

7. The device for data storing, according to claim 1, in which the logically separated smallest areas (1) are either free or busy.

8. The device for data storing, according to claim 1, in which the logically separated smallest areas (1) are the smallest areas of memory, which cannot be subdivided, and their multiplication, and their size depends upon the device for storing data.

9. The device for data storing, according to claim 1, in which the logically separated smallest areas (1) have the size of 512 bits.

10. The device for data storing, according to claim 1, in which the blocks (2, 3, 4) of predetermined size do not contain data concerning their state if they are completely busy or free and in that case related information is included in a greater block, with an integration level greater by one.

11. A method for dividing space for data storing with logically separated areas comprising the following step:

creating blocks of predetermined size from a defined number of logically separated smallest areas wherein smaller blocks are combined recurrently into greater blocks till the partition covers the entire area of a device for storing data, and wherein greater blocks with a higher level of combination are a definite multiplication of smaller blocks with a lower level of combination, and the smaller blocks are incorporated into the greater blocks greater by one level than the smaller blocks.

12. The method for dividing space, according to claim 11, characterized in that a block (3, 4) with greater, by one, integration level has a memory size equal to a multiple of a size of blocks (2, 3) with smaller, by one, integration level, and the amount of information that is stored in the logically separated smallest area (1).

13. The method for dividing space, according to claim 11, characterized in that a number of the logically separated smallest areas (1) in a block (2) of the minimal integration level is equal a number of bits that can be stored in the logically separated smallest area (1).

14. The method for dividing space, according to claim 11, characterized in that blocks (2, 3, 4) of predetermined size have at least three states and information concerning theirs state is stored within their area or within the area of blocks with greater, by one, integration level.

15. The method for dividing space, according to claim 11, characterized in that blocks (2, 3, 4) of predetermined size may be free, busy or fragmented.

16. The method for dividing space, according to claim 11, characterized in that the logically separated smallest areas (1) have at least two states.

17. The method for dividing space, according to claim 11, characterized in that the logically separated smallest areas (1) are either free or busy.

18. The method for dividing space, according to claim 11, characterized in that the logically separated smallest areas (1) are the smallest areas of memory, which cannot be subdivided, and their multiplication, and their size depends upon the device for storing data.

19. The method for dividing space, according to claim 11, characterized in that the logically separated smallest areas (1) have the size of 512 bits.

20. The method for dividing space, according to claim 11, characterized in that the blocks (2, 3, 4) of predetermined size do not contain data concerning their state if they are completely busy or free and in that case related information is included in a greater block, with an integration level greater by one.

1/2

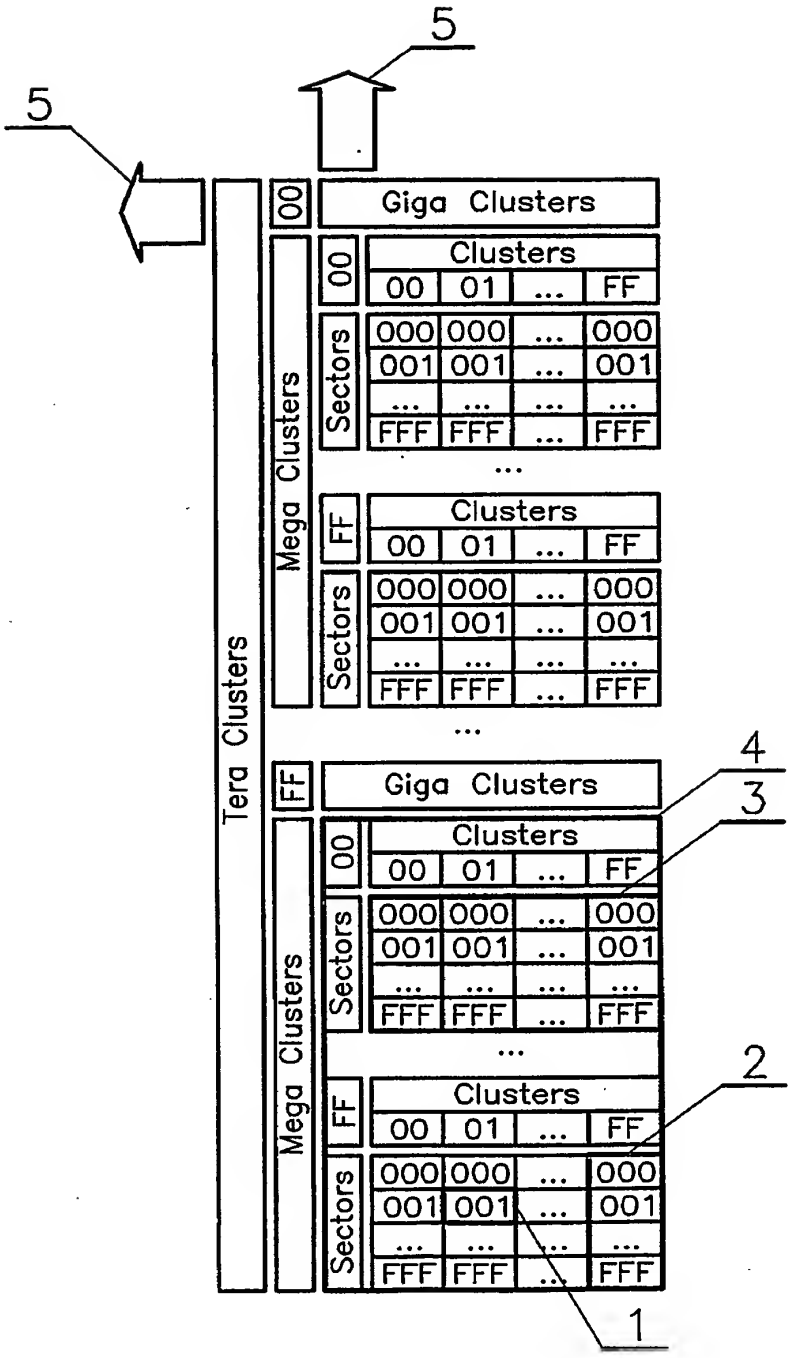
5
5
Tera Clusters
Mega Clusters
Giga Clusters
Clusters
Sectors
00
01
FF
000
001
FFF
4
3
2
1

Fig.1

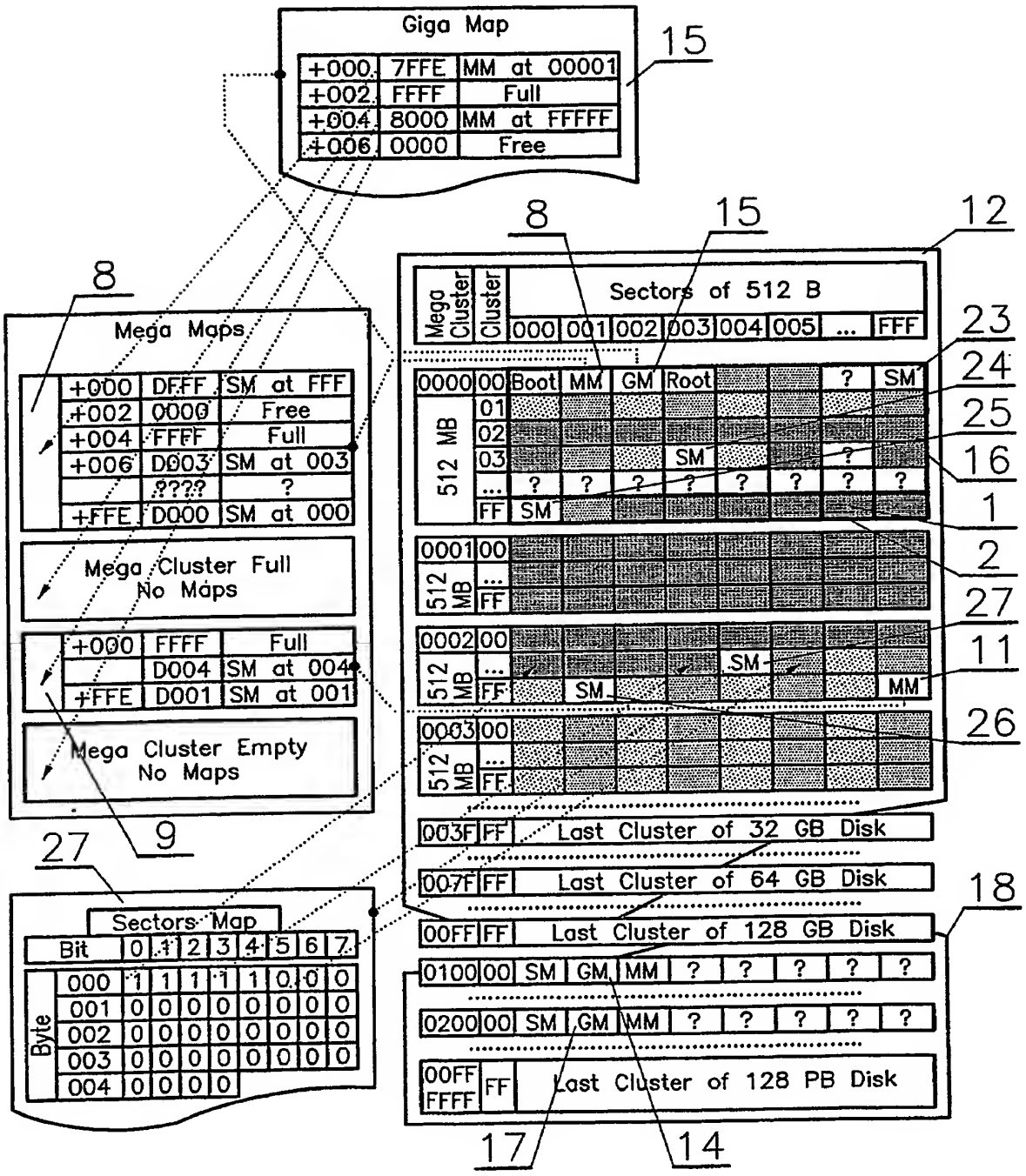
Giga Map
+000 7FFE MM at 00001
+002 FFFF Full
+004 8000 MM at FFFFF
+006 0000 Free
15
8
15
12
Mega Maps
+000 DFFF SM at FFF
+002 0000 Free
+004 FFFF Full
+006 D003 SM at 003
???? ?
+FFE D000 SM at 000
Mega Cluster Full
No Maps
+000 FFFF Full
D004 SM at 004
+FFE D001 SM at 001
Mega Cluster Empty
No Maps
Mega Cluster
Cluster
Sectors of 512 B
000 001 002 003 004 005 ... FFF
23
24
25
16
1
2
27
11
26
512 MB
0000 00 Boot MM GM Root ? SM
01
02
03 SM
FF SM
0001 00
0002 00 SM
FF SM MM
0003 00
003F FF Last Cluster of 32 GB Disk
007F FF Last Cluster of 64 GB Disk
00FF FF Last Cluster of 128 GB Disk
18
0100 00 SM GM MM
0200 00 SM GM MM
00FF FFFF FF Last Cluster of 128 PB Disk
17
14
9
27
Sectors Map
Bit 0 1 2 3 4 5 6 7
Byte
000 1 1 1 1 1 0 0 0
001 0 0 0 0 0 0 0 0
002 0 0 0 0 0 0 0 0
003 0 0 0 0 0 0 0 0
004 0 0 0 0

Fig.2